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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,130	02/08/2002	Theodore Robert Grossman	13DV13989	1479

31316 7590 09/22/2003

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EXAMINER
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MCNEIL, JENNIFER C

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 09/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-8

## Office Action Summary

Application No.

10/071,130

Applicant(s)

GROSSMAN ET AL.

Examiner

Jennifer C. McNeil

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

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## DETAILED ACTION

### *Oath/Declaration*

It is noted that applicant is investigating the typographical error on the Oath/Declaration.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-11, and 13-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen et al (US 6,045,863) in view of Schaeffer (US 6,066,405). Olsen teaches an aluminide diffusion coating suited for nickel superalloys. The coating comprises an inner diffusion zone and an outer zone. The outer zone has a concentration of about 20-28 wt% aluminum. Olsen teaches that the inner diffusion zone has a thickness that is approximately half of the overall thickness of the coating, therefore, the ratio of the thickness would be 1:1. Olsen does not teach specific nickel superalloys that may be used as a substrate. Olsen does state that the coating may be applied to various metallic substrates, particularly the nickel-based superalloy articles such as gas turbine blades (col. 3, lines 43-46). Schaeffer teaches a nickel-based superalloy with a diffusion aluminide coating that may be a turbine blade. The superalloy substrate may be Rene 'N6, which comprises 5.4 wt% rhenium (col. 4, line 7). As it is taught by Schaeffer that an advanced superalloy for turbine blades is Rene 'N6, and it is suitable for diffusion aluminide coatings, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the advanced superalloy taught by Schaeffer as the substrate in Olsen, as they are both using nickel-based superalloys for turbine blades, and both are coated with diffusion aluminides.

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Regarding claims 7 and 15, the coating is deposited at least partly by vapor deposition (Olsen, col. 5, lines 41-52).

Olsen also teaches heating the substrate to 1800-2050 degrees Fahrenheit (col. 5, lines 53-60).

Olsen also does not include platinum in the coating composition.

Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen et al (US 6,045,863) and Schaeffer (US 6,066,405) as applied to claims 1 and 10 above, and further in view of Murphy et al (US 5,953,353). Olsen and Schaeffer teach nickel-based superalloys with diffusion aluminide coatings as discussed above, but do not teach stress relieving the substrate. Murphy teaches a nickel-based superalloy with greater than 4 wt% Re. Murphy teaches that it is beneficial to stress relieve this type of substrate to prevent SRZ formation caused by diffusion coatings (col. 3, lines 1-38). Murphy teaches the SRZ formation is directly related to surface stress, therefore elimination of this stress decreases the formation of SRZ. It would have been obvious to one of ordinary skill in the art at the time of the invention to stress relieve the substrate of Schaeffer as used for the substrate of Olsen, to prevent the formation of a SRZ, since the substrate of Schaeffer has a rhenium content of more than 4 wt% and Murphy teaches that it is beneficial to stress relieve these types of substrates prior to diffusion coating.

### *Response to Arguments*

Applicant's amendment to claim 10 has overcome the 102 rejection over Schaeffer '405.

Applicant's remarks concerning the remaining rejections were not persuasive.

The combination of the references of Olsen '863 and Schaeffer '405 for the rejection of claims 1, 2, 4-11, and 13-20 is held. Also the rejection of claims 3 and 12 further in view of Murphy '353 is held. Olsen teaches a specific aluminide diffusion coating that is suitable for nickel superalloys. This diffusion coating results in a coating commensurate with that of applicant's claims. Olsen does not give a list of nickel superalloys for which the coating may be useful, but does state that it may be applied to various

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metallic substrates, particularly of the nickel-based superalloy articles such as gas turbine blades.

Schaeffer teaches a nickel-based superalloy that is used as a turbine blade substrate. This superalloy also has a rhenium content of 5.4 wt%. It is the examiner's position that the substrate taught by Schaeffer is a nickel-based superalloy known in the art to be useful as a turbine blade and furthermore, as demonstrated by Schaeffer, is compatible with a diffusion aluminide coating thereon. This substrate is considered an art equivalent with other nickel-based superalloys used for turbine blades. As Olsen clearly teaches that the turbine substrate to be used is a nickel-based superalloy, it would have been obvious to one of ordinary skill to use an art-equivalent nickel-based superalloy substrate that is successfully used as a turbine blade substrate and has been demonstrated to be compatible with aluminide coatings. One of ordinary skill would have the full expectation of the success of this combination to form a turbine blade substrate of a nickel-based superalloy of Schaeffer with an aluminide coating thereon of Olsen.

Applicant's argument that these references are nonanalogous art is not persuasive. Both references are directed to aluminide coatings on nickel-superalloy substrates that may be used as turbine engine components.

Applicant argues that the combination of the references is not proper because the coating of Olsen is outward diffusing, and Schaefer in inward diffusing. The purpose of combining the two references is to show that the substrate of the claimed composition is known in the art, as is the coating thereon. The formation of the coatings in the separate references has no bearing on these considerations. The process by which the coating of Olsen is formed does not limit the types of substrates that may be used.

Applicant also argues that the combination does not address reducing SRZ formation. This argument is not commensurate with the scope of the claims. Furthermore, the reason for combination of references does not necessarily have to be for the same reasons as set forth by applicant.

For at least these reasons, the rejection is held.

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*Conclusion*

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer C. McNeil whose telephone number is (703) 305-0553. The examiner can normally be reached on 9-6, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0611.



JCM  
September 14, 2003

  
DEBORAH JONES  
SUPERVISORY PATENT EXAMINER